

REMARKS

Claims 1-29 are pending in the application.

Claims 1-29 stand rejected.

Claims 18 has been amended.

Rejection of Claims under 35 U.S.C. §112

Claim 18 stands rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Applicant has amended claim 18 to address the Examiner's concerns.

Rejection of Claims under 35 U.S.C. §103

Claims 1-3, 5, 6, and 8 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Lu, U.S. Patent No. 5,412,652 (Lu) in view of Takatori et al., U.S. Patent No. 5,550,805 (Takatori).

Claim 4 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Lu in view of Takatori and further in view of Nemoto, U.S. Patent No. 5,506,833 (Nemoto).

Claim 7 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Lu in view of Takatori and further in view of Shah et al., U.S. Patent No. 5,646,936 (Shah).

Claims 9-11 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Lu in view of Takatori and further in view of Shioda et al., U.S. Patent No. 5,537,393 (Shioda).

Claims 12-18, 20-25, and 27-29 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Shiода in view of Takatori.

Claims 19 and 26 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Shioda in view of Takatori and further in view of Shah.

Applicant respectfully traverses these rejections.

(1) Rejection of Claims 1-11:

With respect to the references cited, Applicant respectfully notes that Lu, in view of Takatori, fails to show, teach or suggest the limitations of claim 1. As mentioned in the Office Action, Lu does not disclose applying a mesh restoration protocol to the communications network to restore the transmittal of the protect channel data. (Office Action, page 3).

Takatori does not remedy this deficiency. Takatori discloses a self-healing mesh network with both working capacity and spare capacity. Data is usually transmitted through the network “using only working capacity.” (column 2, lines 5-7). When the working capacity experiences a transmission failure, the network reroutes the data through the spare capacity. (column 3, lines 37-40). However, if the spare capacity is already in use, the network cannot establish a restoration path through the spare capacity. (column 9, lines 1-6). In focusing on keeping the spare capacity free for restoration purposes, Takatori fails to disclose any restoration of data transmission on the spare capacity. Clearly, both Takatori and Lu fail to show, teach or suggest “applying a mesh restoration protocol to the communications network to restore the transmittal of the protect channel data,” as claimed in claim 1.

Neither Takatori nor Lu teaches restoring the transmittal of protect channel data because neither reference recognizes the need to do so. Lu teaches that protection channels do not carry normal traffic; instead, the protection channels carry unprotected extra traffic. The extra traffic is preempted when the network needs to use the protection channel to restore normal traffic. (column 8, lines 24-40). Lu does not recognize or teach the possibility of restoring protection channel traffic because Lu's protection channel only carries preemptable traffic that does not need to be restored.

Takatori teaches that the spare resources are not normally used to transmit data. (column 2, lines 5-7). Takatori does not suggest the need to restore data in the spare resources because the spare resources do not usually carry data. Neither Takatori nor Lu shows, teaches or suggests the need to apply "a mesh restoration protocol to the communications network to restore the transmittal of the protect channel data," as claimed in claim 1. In fact, neither reference even acknowledges a need to restore "the transmittal of the protect channel data" using any protocol.

Furthermore, Applicant is unable to find the motivation in either Lu or Takatori to combine the references of Lu and Takatori. One reason for this lack of motivation is because both references provide a unique way to avoid dealing with data in the protection channel. Lu focuses on minimizing the number of protection channels used in restoration in an effort to reduce the preemption of protection channel data. (column 13, lines 1-9). As noted above, Takatori addresses the issue by avoiding the use of spare resources altogether. One of ordinary skill in the art would not look to Takatori in light of Lu because Takatori avoids using the protection channel and would not need to preempt data on the channel because the protection channel is not normally used to transmit data. Similarly, one of ordinary skill in the art would not look to Lu in light of Takatori

because Lu teaches transmitting data on the protection channel and Takatori teaches that data is not usually transmitted on this channel.

Even if Lu and Takatori were combined, the result of their combination would fail to make obvious the claimed invention and would fail to provide the advantages of the claimed invention. This is because both references suffer from exactly the problem addressed by the claimed invention. Lu discloses that protection traffic on the protect channel is preempted. (column 8, lines 24-40). Takatori teaches that the protection traffic lines are not normally used for the transmission of data. (column 2, lines 5-7). Combining the two references would yield an impractical system with a preemptable protection channel that is rarely used. Nothing in a combination of the references would suggest restoring the transmittal of protection channel data in any way. Therefore, the combination of Lu and Takatori does not, and in fact could not, show, teach or suggest "applying a mesh restoration protocol to the communications network to restore the transmittal of the protect channel data," as recited in claim 1.

In light of the foregoing discussion, Applicant respectfully submits that claim 1 clearly distinguishes over Lu, taken alone or in permissible combination with Takatori. Applicant therefore respectfully submits that independent claim 1, as well as claims 2-11, which depend on claim 1, are allowable for at least the foregoing reasons.

(2) Rejection of Claims 12-29:

With respect to the references cited, Applicant respectfully notes that Shioda, in view of Takatori, fails to show, teach or suggest the limitations of claim 12. As noted in the Office Action, "Shioda does not disclose that the restoration protocol is a 'mesh' protocol." (Office Action, page 7).

The Office Action also states that Shioda's apparatus "performs restoration of working and protection lines." (Office Action, page 6). Applicant respectfully notes that Shioda does not teach the restoration of protection lines. Shioda discloses an apparatus that can handle erroneous connections made to working and protection lines. (column 7, lines 25-62). Shioda does not disclose any type of restoration of protect channel data.

Applicant also respectfully notes an important difference between fixing an erroneous connection made to the protection line, as taught by Shioda, and restoring protect channel data, as claimed in claim 12. Shioda discloses a bi-directional ring network that uses loopbacks to handle transmission failures. (column 3, lines 33-45). The protection channels can be used to facilitate the loopbacks. (see figures 1 and 2). If transmission failures occur in two lines connected to a single node, a erroneous channel connection results. (column 3, line 52 to column 4 line 9). When an erroneous channel connection occurs on a protection channel, the apparatus taught by Shioda can fix the erroneous connection. (column 7, lines 25-57).

However, if data was on the protection line at the time of the failure, the data on the protection line is suspended so that the protection line can be used in the loopback. (column 7, lines 35-41). Shioda does not teach restoring data on the protection line in the event of a transmission failure. Clearly, Shioda does not show, teach or suggest "mesh restoration of protect channel data" as claimed by claim 12.

Takatori does not remedy this deficiency in Shioda for at least the reasons mentioned in section (1), *supra*. As previously noted, Takatori teaches that data is usually transmitted over the spare capacity for only restoration purposes. When a working capacity transmission failure occurs, the network reroutes the data through the spare capacity. (column 3, lines 37-40). Because the spare capacity does not usually

carry data, Takatori fails to disclose any restoration of transmission data on the spare capacity. Therefore, both Takatori and Shioda fail to show, teach, or suggest “a switch responsive to the signals identifying disruptions in the transmissions in the protect channel and the working channel, the switch communication with the route processor to implement mesh restoration of protect channel data,” as claimed in claim 12.

Applicant is unable to find anywhere in Shioda or Takatori the motivation to combine the references to provide the advantages of the claimed invention. This is to be expected because both Shioda and Takatori teach similar techniques for dealing with protection lines. In Shioda, “service is usually provided through a working line,” not a protection line. (column 7, lines 31-41). Similarly, Takatori teaches that data is usually transmitted through the network “using only working capacity.” (column 2, lines 5-7). Both references teach that the protect channel does not usually carry data; therefore, there is no motivation to combine the references in order to provide mesh restoration of protect channel data.

Additionally, one of skill in the art would find no motivation to combine Shioda and Takatori because the result of the combination would be a system that is less efficient than either Shioda or Takatori taken alone. Takatori teaches a mesh network capable of rerouting data by determining a new restoration route for the data. (column 2, lines 12-31). Shioda’s correction apparatus solves a problem that occurs in a ring network; therefore, combining Shioda’s correction apparatus with Takatori’s mesh network adds little value to Takatori. In fact, Shioda’s correction apparatus might well make Takatori’s mesh network less efficient by redirecting data using loopbacks instead of restoration routes. Because of the lack of motivation to combine the references, one of skill in the

art would not look to Takatori in light of Shioda to provide restoration of protect channel data.

Similarly, one of skill in the art would find no motivation to combine Takatori's mesh restoration algorithm with Shioda's correction apparatus because Shioda's restoration apparatus is intended for use in networks employing a ring topology. Due to the various foregoing infirmities, a lack of motivation to combine Shioda and Takatori exists, and so one of skill in the art could not be expected to look to Shioda in light of Takatori to provide mesh restoration of protect channel data, as claimed in claim 12.

Applicant therefore respectfully submits that claim 12 clearly distinguishes over Shioda, taken alone or in permissible combination with Takatori. Applicant submits that these arguments apply with equal force to claims 21 and 29. Applicant therefore respectfully submits that independent claims 12, 21 and 29, as well as claims 13-20 and 22-28, which depend on claims 12 and 21, are allowable for at least the foregoing reasons. Accordingly, Applicant respectfully submits that claims 12-29 are in condition for allowance.

CONCLUSION

In view of the amendments and remarks set forth herein, the application is believed to be in condition for allowance and a notice to that effect is solicited. Nonetheless, should any issues remain that might be subject to resolution through a telephonic interview, the Examiner is invited to telephone the undersigned at 512-439-5084.

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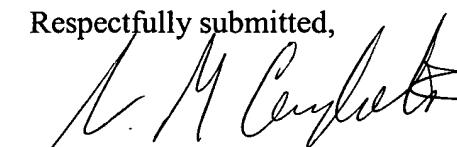


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